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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,708	09/08/2003	Yao-Hwan Kao	67,200-1093	2305

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TUNG & ASSOCIATES
Suite 120
838 W. Long Lake Road
Bloomfield Hills, MI 48302

EXAMINER

STINSON, FRANKIE L

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,708

Applicant(s)

KAO ET AL.

Examiner

FRANKIE L. STINSON

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1746

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. (U. S. Pat. No. 6,241,402), Inada et al. (U. S. Pat. No. 5,625,433) Tanaka et al. (U. S. Pat. No. 5,689,749) in view of either Matsuyama et al. (U. S. Pat. No. 6,514,570) or Chen et al. (U. S. Pat. No. 6,170,165).

Re claims 1 and 11 Sakamoto, Inada, Tanaka are each cited disclosing an apparatus for dispensing a liquid onto a substrate, comprising:

a support (2 in Sakamoto, 60 in Inada, and 21 in Tanaka) for receiving the substrate;

a dispensing head (5 in Sakamoto, 70 in Inada and 31, 21 in Tanaka) for dispensing the liquid onto substrate;

a knife-ring (33 in Sakamoto, 66 in Inada and 24 in Tanaka, see fig. 15) having a base and a tapered edge extending from said base, mounted beneath said support; that differs from the claims only in the recitation of the knife-ring being vertically adjustably mounted, via an automatic/hydraulic-powered adjustment mechanism.

The patents to Chen and Matsuyama are each cited disclosing that it is old and well known in the art to provide an apparatus for dispensing a liquid onto a substrate, a knife-ring (4 in Matsuyama and 40 in Chen) where the knife-ring is vertically adjustable to selected positions. Sakamoto specifically discloses the knife-ring being automatically

Art Unit: 1746

adjusted. It therefore would have been obvious to one having ordinary skill in the art to modify the device of either Sakamoto, Inada or Tanaka, to have the knife-ring adjustable as taught by either Chen or Matsuyama, for the purpose of precisely controlling the spacing between the substrate's backside and the top edge of the air-knife, and therefore, the amount of treatment liquid inadvertently escaping to the backside of the substrate. It is well known in the art that the backside of the substrate, which is being treated/developed with process fluids/developer liquid, often times becomes contaminated with said process fluid, which leaks around to the backside thereof. All of the applied prior art recognizes the problem of the process liquid leaking around to the backside of the substrate. All of the references employ a knife-ring to prevent the process fluid from contaminating the backside of the substrate. Chen and Matsuyama further recognize that for greater of effective contamination control, the gap or spacing must be maintained within a specific distance, and they each provide adjustable means for ensuring the desired spacing. So given the nature of the problem to be solved, i.e. backside substrate contamination control, it is the position of the examiner that it would have been obvious to one having ordinary skill in the art, to modify the knife-rings in either Inada, Sakamoto and Tanaka, to have the same adjustable, for the purpose of maintaining proper spacing for proper sealing of the backside of the substrate. Re claim 2, to have the knife-ring adjusted by a fluid actuated cylinder, is deemed to be an obvious matter of design (see **MPEP 2144.06 SUBSTITUTING EQUIVALENTS KNOWN FOR THE SAME PURPOSE**). Re claims 3, 6, 8, 10, 12 and 14, no patentable distinction is deemed to exist between the widths as

Art Unit: 1746

claimed, i.e., 290mm and the corresponding structure in the applied prior art. Re claims 4, 5, 7, 9 and 13, the applied prior art is cited as applied to the subject matter of claim 2 above.

3. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In Ohkase, Halsey et al., Tung et al., Stewart and Japan'846, note the knife-rings.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **FRANKIE L. STINSON** whose telephone number is

Art Unit: 1746

(572) 272-1308. The examiner can normally be reached on M-F from 5:30 am to 2:00 pm and some Saturdays from approximately 5:30 am to 11:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached on (571) 272-1700. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

fls



FRANKIE L. STINSON
Primary Examiner
GROUP ART UNIT 1746